

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau

INTERNATIONAL PATENT COOPERATION TREATY (PCT)  
 INTERNATIONAL BUREAU OF PATENT COOPERATION  
 35, rue de la Harpe, CH-1015, Yvertois, Suisse  
 480, rue de la Conférence, Case Postale 658, F-69634, Lyon Cedex 07, France  
 800 West Washington, Suite 600, Geneva, NY 14456, USA

(43) International Publication Date  
16 September 2004 (16.09.2004)

PCT

(10) International Publication Number  
WO 2004/078835 A1(51) International Patent Classification<sup>7</sup>: C08K 3/36(21) International Application Number:  
PCT/KR2004/000106

(22) International Filing Date: 20 January 2004 (20.01.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

10-2003-0004453 23 January 2003 (23.01.2003) KR

(71) Applicant (for all designated States except US): REPUBLIC OF KOREA (CHONNAM NATIONAL UNIVERSITY) [KR/KR]; 300, Yongbong-dong, Puk-gu, 500-757 Gwangju (KR).

(72) Inventor; and

(75) Inventor/Applicant (for US only): SEO, Gon [KR/KR]; 104-305 Yeomju apartment, Hwajeong 4-dong, Seo-gu, 502-244 Gwangju (KR).

(74) Agent: SHIN, Yongkyl: Y.SHIN PATENT OFFICE, New Seoul Bldg., 828-8 Yoksam-dong, Kangnam-gu, Seoul 135-080 (KR).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

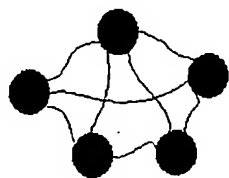
— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.



A1

(54) Title: NETWORK SILICA FOR ENHANCING TENSILE STRENGTH OF RUBBER COMPOUND



: bridge chain



: primary particle of silica

Three-dimensional networks formed among silica particles.

break, compared to those of the rubber compounds reinforced with silica and the conventional coupling reagents.

(57) Abstract: The present invention relates to A three-dimensionally networked silica composed of silica particles of 0 to 100 nm combining by bridge chains of aliphatic, aromatic, polyimine, peptide, and polyether groups. When the networked silica of the present invention can be used to rubber compounds, the compounds brought about considerable increases in tensile strength and elongation at break.

BEST AVAILABLE COPY